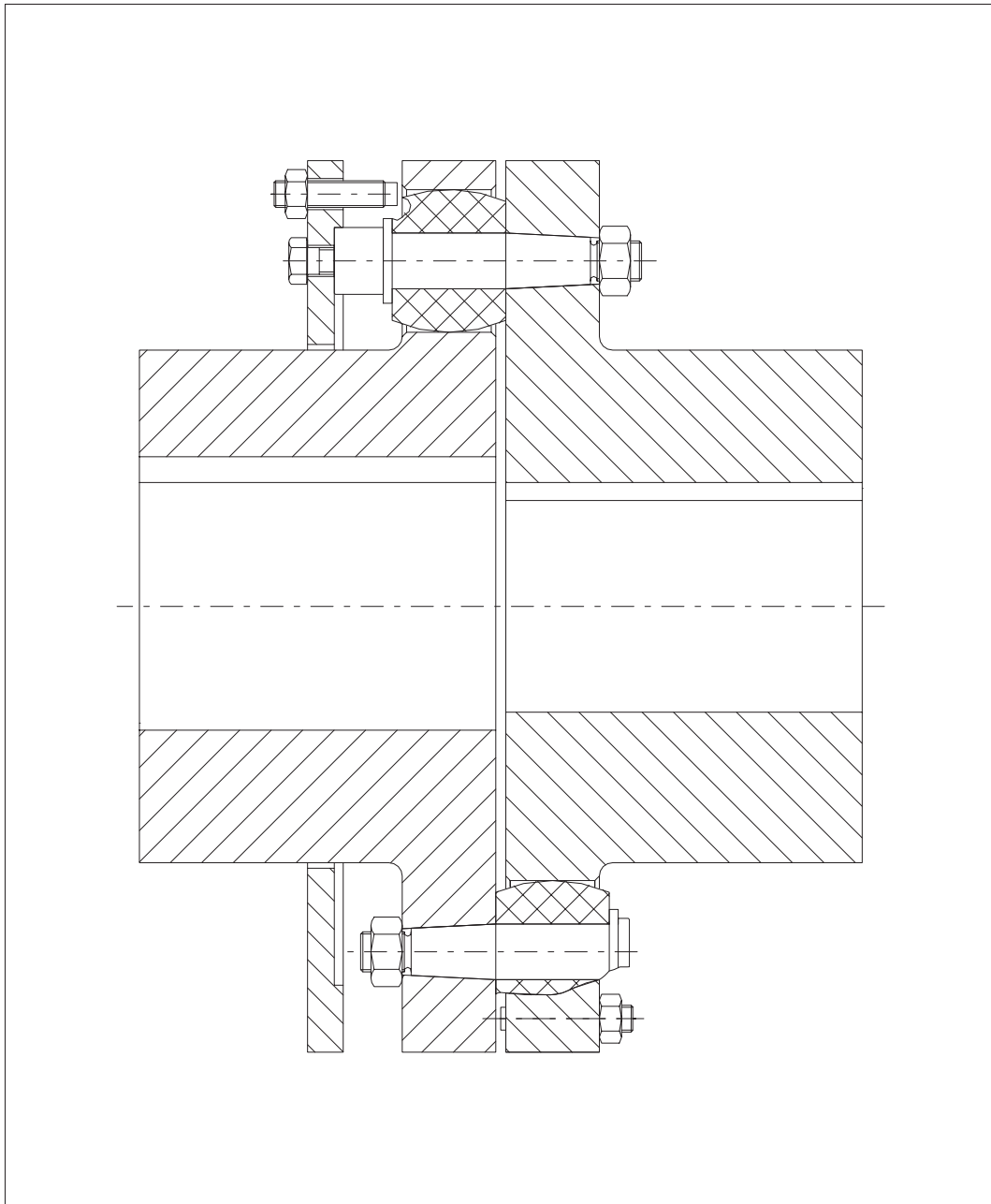


Operating Instructions

BA 3601 EN 10.98

Flexible **RUPEX** couplings type **RWN** and **RWS**
with axial limitation of backlash



FLENDER

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1. Technical data

1.1 Validity of the nominal torques

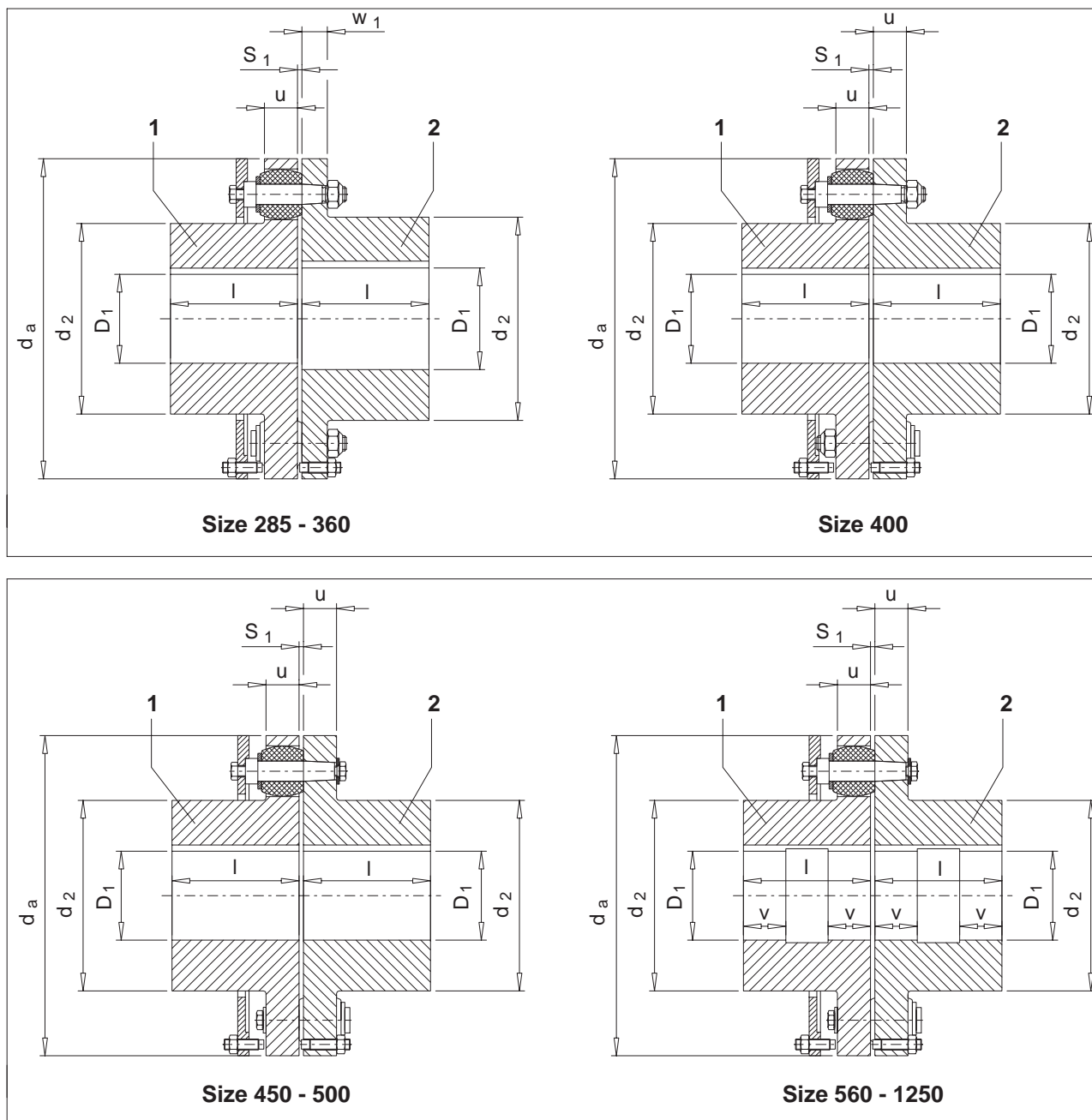
Validity of nominal torques T_{KN} (with original RUPEX buffer of buna N, hardness 80 Shore **only**):

- daily operating cycle up to 24 h
- during the starting process or during operation, torque impulses up to the triple nominal torque are allowed up to 25 times per hour.
- Operation within the prescribed alignment
- Operation in the temperature range from $-30\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$ (ambient temperature or temperature of the shaft ends).

Caution!

For permanent trouble-free operation, the coupling has to be designed with a service factor appropriate to the respective application. When changing the operating conditions (performance, speed, changes on power engine and machine), a check of the design is absolutely necessary.

1.2 Types RWN and RWS with axial limitation of backlash



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Size	Nominal torque T _{KN} 1) Nm	Speed n _{max}		Bore					d _a			l	v	P	S ₁	w ₁	u	Weight				
		RWN	RWS	from	to		RWN	RWS		Part 1	Part 2							Part 1	Part 2			
					D _{1/2}	D ₁														D ₂	D ₁	D ₂
					mm	mm														mm	mm	mm
285	4300	2400	3900	48	100	110	110	120	285	164	175	110		60	3... 6	30	32	16	23	17.5	25	
320	5500	2100	3500	55	110	120	125	130	320	180	192	125		60	3... 6	30	32	23	30	25	32	
360	7800	1900	3100	65	120	130	135	140	360	200	210	140		75	3... 6	42	42	32	46	35	50	
400	12500	1700	2800	75	140	140	150	150	400	230	230	160		75	3... 6		42	53	53	57	57	
450	18500	1500	2500	85	160	160	170	170	450	260	260	180		90	4... 7		52	78	78	84	84	
500	25000	1350	2200	95	180	180	190	190	500	290	290	200		90	4... 7		52	99	99	105	105	
560	39000	1200	2000	> 100 140 180 200	> 140 180 200	> 140 180 200	> 165 200 210	> 165 200 210	560	250 300 320	250 300 320	220	70	120	4... 8		68	140 145 145	140 145 145	150 155 155	150 155 155	
630	52000	1050	1800	> 100 140 180 220	> 140 180 220	> 140 180 220	> 165 200 235	> 165 200 246	630	250 300 355	250 300 355	240	80	120	4... 8		68	175 185 200	175 185 200	190 200 215	190 200 215	
710	84000	950	1600	> 110 160 200 240	> 160 200 240	> 160 200 240	> 190 220 250	> 190 220 250	710	290 330 385	290 330 385	260	80	140	5... 9		80	255 260 270	255 260 270	275 280 290	275 280 290	
800	110000	850	1400	> 125 180 220 260	> 180 220 260	> 180 220 260	> 210 240 280	> 210 240 280	800	320 360 420	320 360 420	290	90	140	5... 9		80	330 350 360	330 350 360	360 380 390	360 380 390	
900	150000	750	1250	> 140 180 220 260 290	> 180 220 260 290	> 180 220 260 290	> 210 240 280 310	> 210 240 280 310	900	320 360 425 465	320 360 425 465	320	100	160	5...10		90	450 450 480 510	450 450 480 510	490 490 520 550	490 490 520 550	
1000	195000	680	1100	> 150 200 240 280 320	> 200 240 280 320	> 200 240 280 320	> 230 260 300 340	> 230 260 300 340	1000	355 395 460 515	355 395 460 515	350	110	160	5...10		90	560 580 630 660	560 580 630 660	610 630 680 710	610 630 680 710	
1120	270000	600	1000	> 160 200 250 300 350	> 200 250 300 350	> 200 250 300 350	> 240 270 330 370	> 240 270 330 370	1120	360 410 495 560	360 410 495 560	380	120	180	6...11		100	730 750 800 840	730 750 800 840	790 810 870 910	790 810 870 910	
1250	345000	550	900	> 180 230 280 330 380	> 230 280 330 380	> 230 280 330 380	> 270 300 360 400	> 270 300 360 400	1250	410 460 540 610	410 460 540 610	420	130	180	6...11		100	920 950 1000 1100	920 950 1000 1100	1000 1050 1050 1150	1000 1050 1050 1150	

Table 1.1: Torques T_{KN} , speeds n_{max} , sizes and weights

- 1) Observe the validity of the nominal torques T_{KN} according to 1.1!
- 2) Weights are valid for max. bores.

2. General notes

2.1 General

These Operating Instructions constitute part of the coupling shipment and should be kept in the immediate vicinity of the coupling at all times.

Only a precise knowledge of the Operating Instructions will ensure trouble-free operation of the coupling. It is therefore in the interest of our customer that the operating instructions are read, understood and observed in all respects by the persons responsible for handling, installation and operation.

Note: We accept no liability for any damage or malfunction resulting from non-observance of the operating instructions.

The "**coupling**" dealt with in these operating instructions was developed for stationary use in general engineering.

The coupling is only designed for the field of application as specified in Section 1 "Technical data". Operating conditions which differ from the stated will require fresh contractual agreements.

The coupling described here is in accordance with the state of the art at the time of these operating instructions go into print.

In the interest of further development, we reserve the right to introduce modifications which, while retaining the essential features, can be regarded as desirable to increase its efficiency and safety.

The copyright of these Operating Instructions remains the property of **FLENDER AG**.

These operating instructions may not be duplicated in part or whole, utilized for the purpose of publicity or communicated to third parties without our expressed consent.

Please contact our works listed below in respect of all technical queries.

FLENDER AG
D 46393 Bocholt

Telephone: 02871/92-2800
Telefax: 02871/92-2801

or one of our service branches which are listed in Section 11 "Stocking spare parts, service facility addresses".

3. Safety notes

3.1 Safety notes

- The coupling is constructed in accordance with the state of the art and is reliable in the condition as shipped. Unauthorized modifications which impair its reliability are not permissible. This also applies to guards which are fitted as protection against accidental contact.
- The coupling may only be used and operated within the scope of the condition specified in the contract of performance and supply.
- The customer should ensure that the persons entrusted with installation, operation, care and maintenance as well as repair have read and understood the operating instructions and observe them in all respects in order to:
 - prevent hazard to life and limb of the user and third parties
 - ensure the reliability of the coupling

and

- prevent failure and environmental pollution due to incorrect handling.
- The relevant regulations concerning industrial safety and pollution control should be observed during handling, installation, operation as well as care and maintenance.
- The coupling may only be operated, serviced and repaired by authorized, trained and properly instructed personnel.
- All work should be carried out with care with the safety aspect in mind.
- All work on the coupling may only be carried out when it is stationary.
The coupling must be secured to prevent accidental start up (e.g. by locking the key switch or by removing the fuses and the power supply). A notice should be displayed at the switch-on point stating that work is in progress on the coupling.
- The drive unit should be shut off at once if changes in the coupling are detected during operation, such as e.g. changed running noises.
- The coupling must be protected by means of suitable guards to prevent accidental contact.
- During installation of the coupling in units or systems, the manufacturer of the units or systems is obliged to incorporate the requirements, notes and descriptions contained in these operating instructions in his own operating instructions.

3.1.1 Notes and symbols in the operating instructions

Instructions in the operating instructions which concern operating safety are emphasized as follows:



This symbol draws attention to safety measures which must be observed to prevent **personal injury**.

Caution!

This symbol draws attention to safety measures which must be observed to prevent **damage to the coupling**.

Note:

This note draws attention to general **operating notes** which should be especially observed.

4. Handling and storage

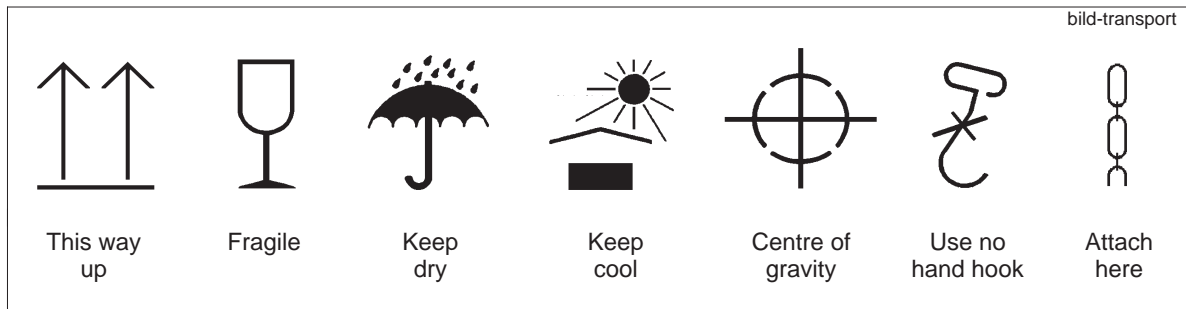
4.1 Scope of supply

The scope of the shipment is listed in the shipping documents. They should be checked for completeness on receipt. Any shipping damage and/or missing parts should be reported in writing at once. After consulting FLENDER an expert is to be called in.

4.2 Handling

The packing of the coupling will differ depending on method of shipment and size. The packing, unless otherwise agreed contractually, complies with **HPE Packing Guidelines**.

The symbols shown on the packing should be noted. Their meaning is as follows:



Caution!

Make sure that suitable hoists are used.

4.3 Storage

4.3.1 Storage of the coupling parts

The coupling is delivered in a preserved state and can be stored at a covered dry place up to 6 months. If the coupling shall be stored for a longer period of time, an appropriate long-term preservation is necessary (consultation with FLENDER required).

Caution!

Before cleaning the coupling parts and applying the long-term preservation, the buffers are to be removed.

4.3.2 Storage of the buffers

4.3.2.1 General

Properly stored buffers keep their characteristics for up to 5 years. Unfavourable storage conditions and improper treatment of the buffers result in a negative change of the physical characteristics. These changes can be caused by the effects of e.g. ozone, extreme temperatures, light, moisture or solvents.

4.3.2.2 Storage room

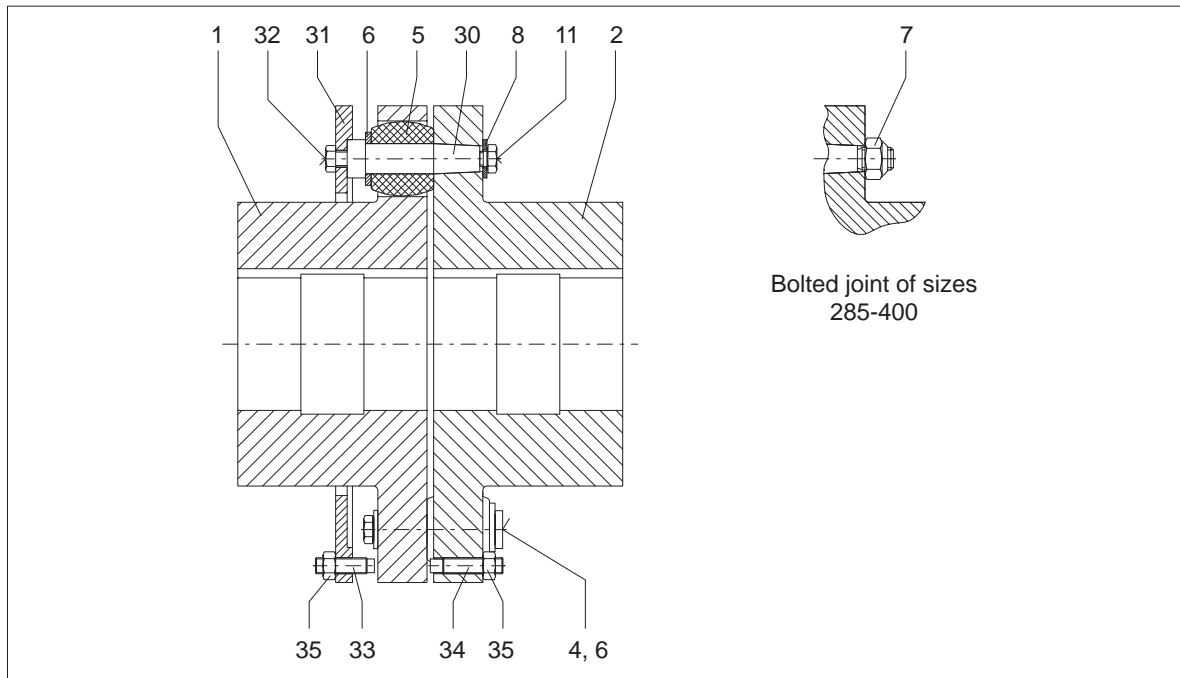
The storage room should be dry and dust-free. The buffers must not be stored together with chemicals, solvents, fuels, acids, etc. Furthermore, they should be protected against light, especially against direct sun light and strong artificial light with a high ultra-violet percentage.

Caution!

The storage rooms must not contain any ozone-producing devices like e.g. fluorescent light sources, mercury-vapour lamps, electric high-voltage devices. Damp storage rooms are unsuitable. Make sure that no condensation develops. The relative humidity of air is most favourable below 65 %.

5. Technical description

5.1 General description



The RUPEX coupling consists of two coupling parts and the pin with the flexible plastic buffers required for transmitting the torque. The type **with axial limitation of backlash** is also fitted with the ring (31) and headless pin with nuts (33-35).

Up to size 360, the ground steel bolts are attached to the buffers only in the coupling part (2). From size 400 they are attached alternately in the coupling parts (1 and 2). In the assembled state, the buffers engage the buffer bores of the counterpart.

The flexible plastic buffers of buna N have a hardness of 80 Shore. Buffers of differing material quality and/or hardness are available within limits. With regard to the availability of these special buffers and the extent to which the properties of the coupling are affected, please consult FLENDER.

RUPEX couplings with limited axial backlash are used in applications where the motor has no axial bearing of its own.

6. Assembly


6.1 Notes on fitting the finished bore, the axial securing, the set screws, the balancing

6.1.1 Finished bore

- Remove buffers.
- Remove the anti-corrosion agent from coupling parts 1/2



Observe manufacturer's instructions on handling solvents.

When fitting the finished bore, align the parts carefully. For the permissible radial and axial excentricity see DIN ISO 286 degree of fundamental tolerance IT8. The location of the parts () is to be carried out on the marked surfaces.

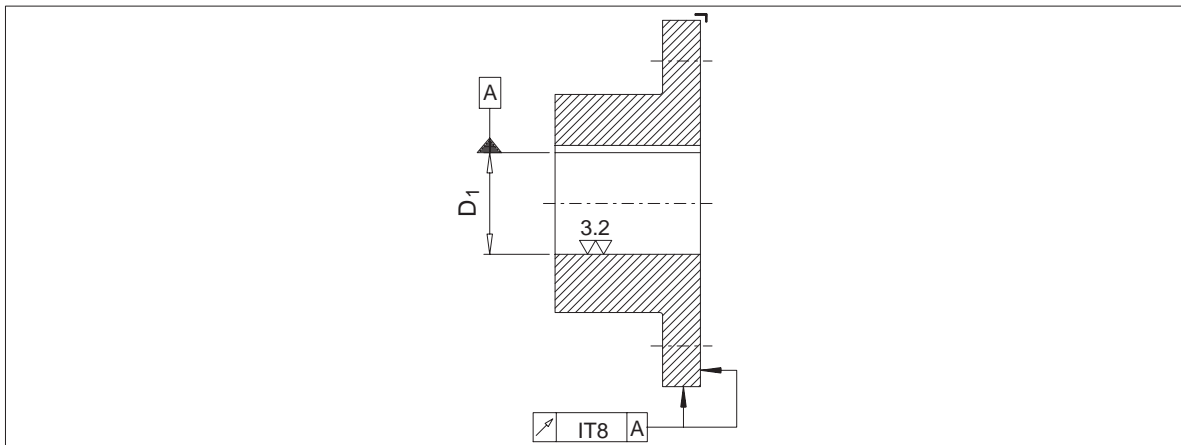
Caution!

The maximum permissible boring diameters (see Section 1.) are designed for driving connections without tightening according to DIN 6885/1 and must not be exceeded in any case.

If other shaft hub connections (e.g. splined hub profile, tapered or graded bore, driving connection with tightening, etc.) shall be fitted instead of the intended driving connections, FLENDER is to be consulted.



**Non-observance of these notes may lead to the drifting of coupling.
There is a danger to life due to broken pieces flying around!**



In case of drive by means of parallel keys, the following fit pairings are prescribed for the bores:

Shaft end tolerances			Boring Tolerances
k6	m6	n6	
Diameter in mm			
≤ 50			J7
		> 100	J7
	≤ 100		J7

Table 6.1: Fit pairings

Caution!

This arrangement applies for axial attachment with set screw (up to size 360 only) or for end-plate attachment with locking screws.

Observing the fit correspondance is absolutely necessary, on the one hand in order to keep low the backlash in the shaft hub connection or, on the other hand, to keep the hub tension caused by the overdimension within the permissible load depending on the use of the tolerance fields. It cannot be excluded, that the shaft hub connection is endangered when the fit correspondance is not observed.

For an absolutely tight fit, consult FLENDER.



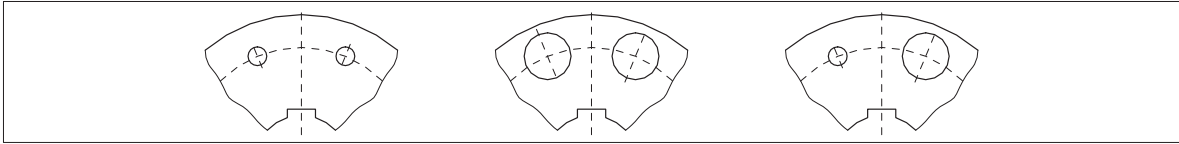
**Non-observance of these notes may lead to the bursting of the coupling.
There is a danger to life due to broken pieces flying around!**

6.1.1.1 Keyway

The keyways have to be designed according to the existing parallel keys. For keyways, the tolerance field of the hub keyway width **ISO JS 9** is to be observed.

For more difficult operating conditions, as it is the case for e.g. reversing operation of operation with impulses, the tolerance filed of the hub keyway width **ISO P9** is prescribed.

Caution! The keyways are to be set and centered between the buffer bores.



6.1.2 Axial securing

For axial attachment of the coupling parts up to size 360, a set screw may be used. From size 400 onwards, the coupling parts should be secured against axial shift on the machine shafts by means of an absolutely tight fit or by end plates with locking screws. If end plates are being used, FLENDER should be consulted on applying the recess in the coupling parts.

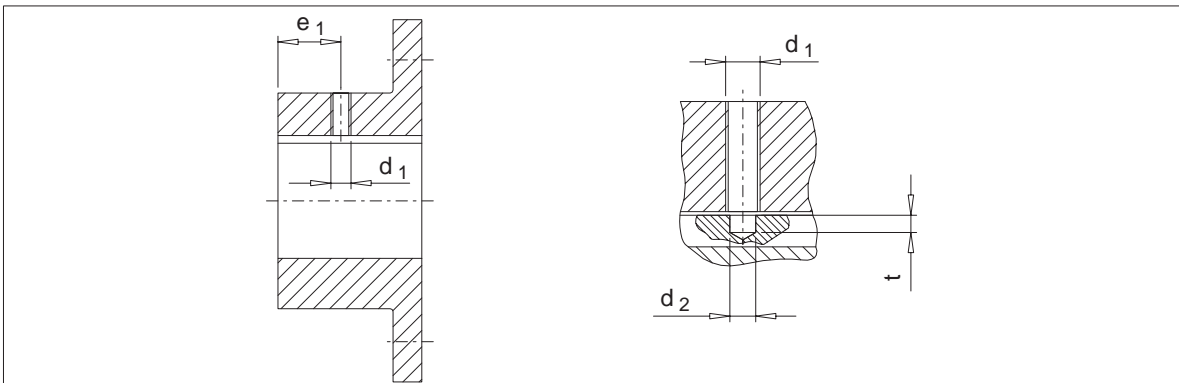
6.1.3 Set screws

Use headless pins with tappets (DIN 915) as set screw.

It is absolutely necessary to observe the following guidelines!



The length of the set screw is to be chosen so that it completely fills the cut hole but that it does not protect over the hub ($L_{min} = d_1 \times 1.2$).



Type RWN					Type RWS				
Bore range		d ₁	d ₂	t	Bore range		d ₁	d ₂	t
above mm	to mm	mm	mm	mm	above mm	to mm	mm	mm	mm
48	65	M10	7	2.5	48	75	M 8	5.5	2
65	95	M12	8.5	3	75	95	M12	8.5	3
95	110	M16	12	4	95	110	M16	12	4
110	140	M20	15	5	110	150	M20	15	5

Table 6.2: Set screw assignment

Size	285	320	360	400	450	500	560	630	710	800	900	1000	1120	1250
Distance dimension e ₁	55	60	70	80	80	90	100	110	130	115	160	175	160	200

Table 6.3: Distance dimensions of the set screws

Caution! Generally, the set screws are to be arranged on the keyway.

6.1.4 Balancing

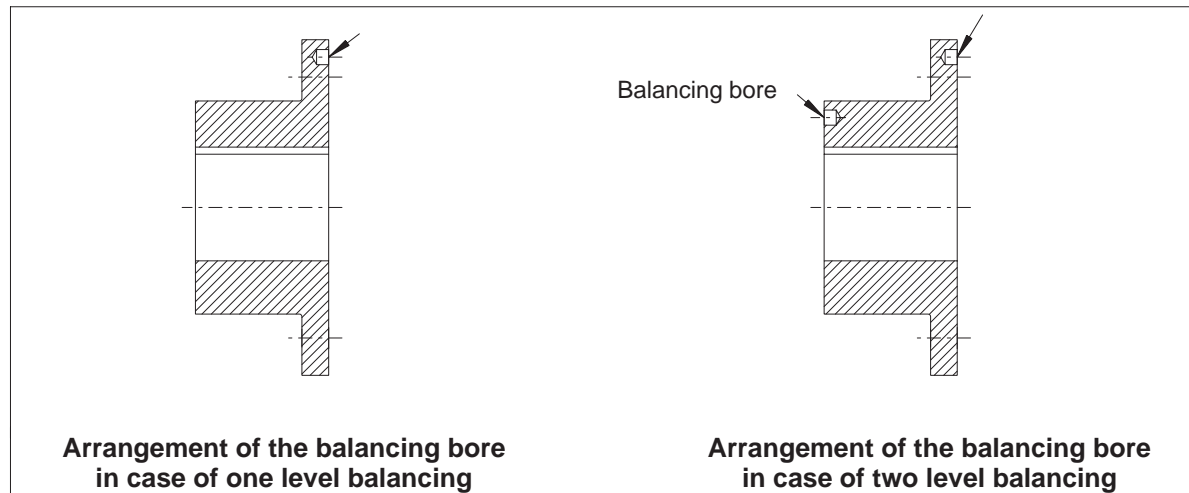
Prebored couplings resp. prebored coupling parts are shipped unbalanced. For these parts it is recommended to balance them depending on the application case after finish boring (see also DIN 740, VDI guideline 2060).

Balancing is usually carried out by material cutting through boring. In order to restrict the material quantity to be cut to a minimum, the biggest possible balancing radius is to be selected.

Caution!

For parts 1/2, cutting has to be carried out between the bores without through-boring of the bottom.

Finished bored couplings or coupling parts are balanced according to the instructions of the ordering party.



6.2 General installation notes

For the installation the safety notes in Section 3. are to be observed.

The installation has to be carried out with utmost care by trained personnel.

Already during the planning phase it is to be observed that sufficient room is to be provided for the installation and later inspection and maintenance work.

Before starting the installation a sufficient number of hoists must be provided for.

6.3 Mounting the coupling parts 1/2 for attachment by set screw

Before starting the assembly, the shaft ends as well as the coupling parts have to be cleaned thoroughly. Before cleaning the coupling parts with solvents, remove the buffers.



Observe the manufacturer's instructions on handling the solvents.

Caution!

Before mounting the coupling part 1 on the motor shaft, place the locking ring (31) on the hub of coupling part 1.

Caution!

**Mount coupling parts 1/2 using suitable equipment to prevent the shaft bearing from being damaged by the axial forces during assembly.
Make sure that suitable hoists are used.**

Warming up the coupling parts (to max. +150 °C) might make the fitting easier. In case of temperatures above +80 °C, the buffers/bolts have to be removed from the coupling parts before warming up.



Protect yourself against burns by hot parts!

Allow the coupling parts 1/2 to cool down to +30 °C.

Spot-drill the parallel key in the motor shaft through the existing hole for the set screw acc. to item 6.1.3.

Carefully remove all dirt and contamination from the coupling parts.

Caution!

Tightening of the set screws only by means of a hexagon socket head wrench according to DIN 911, without an extension pipe.



**Non-observance of these notes may lead to the burrstriving of the coupling.
There is danger to life due to broken pieces flying around!**

Install the bolt (4) with disk (6) and buffer (5) in coupling part 1.

Caution!

Pay close attention to markings.

Tighten nuts (7) or bolts (11) using a torque wrench (for correct torques see section 6.9).

Install the bolt (30) with disk (6) and buffer (5) in coupling part 2.

Caution!

Pay close attention to markings.

Tighten nuts (7) or bolts (11) using a torque wrench (for correct torques see section 6.9).

Determine the axial backlash of the electric motor in order to obtain the position of the machines being coupled. Half the actual backlash indicates the temporary position of the motor shaft in relation to the machine shaft and must be within the permitted deviation for dimension S_1 (see section 1).

Loop together the machines to be coupled.



Danger of squeezing!

Mount the locking ring (31) and bolt (30) with the bolts (32).

Caution!

Pay close attention to markings

Tighten the bolts (32) (see section 6.9 for correct torques) and secure them with a few spots of adhesive (e.g. Loctite type 242).

6.4 Mounting the coupling parts 1/2 for attachment using end plates

Before starting the assembly, the shaft ends as well as the coupling parts have to be cleaned thoroughly. Before cleaning the coupling parts with solvents, remove the buffers.



Observe the manufacturer's instructions on handling the solvents.

Caution!

Before mounting the coupling part 1 on the motor shaft, place the locking ring (31) on the hub of coupling part 1.

Caution!

**Mount coupling parts 1/2 using suitable equipment to prevent the shaft bearing from being damaged by the axial forces during assembly.
Make sure that suitable hoists are used.**

Warming up the coupling parts (to max. +150 °C) might make the fitting easier. In case of temperatures above +80 °C, the buffers/bolts have to be removed from the coupling parts before warming up.



Protect yourself against burns by hot parts!

Allow the coupling parts 1/2 to cool down to +30 °C.

Position the end plates and screw them to the shaft end by means of locking screws.

Install the bolt (4) with disk (6) and buffer (5) in coupling part 1.

Caution!

Pay close attention to markings.

Tighten nuts (7) or bolts (11) using a torque wrench (for correct torques see section 6.9).

Install the bolt (30) with disk (6) and buffer (5) in coupling part 2.

Caution!

Pay close attention to markings.

Tighten nuts (7) or bolts (11) using a torque wrench (for correct torques see section 6.9).

Determine the axial backlash of the electric motor in order to obtain the position of the machines being coupled. Half the actual backlash indicates the temporary position of the motor shaft in relation to the machine shaft and must be within the permitted deviation for dimension S₁ (see section 1).

Loop together the machines to be coupled.



Danger of squeezing!

Mount the locking ring (31) and bolt (30) with the bolts (32).

Caution!

Pay close attention to markings

Tighten the bolts (32) (see section 6.9 for correct torques) and secure them with a few spots of adhesive (e.g. Loctite type 242).

6.5 Mounting the coupling parts 1/2 in case of absolutely tight fit

Caution!

Remove the bolt and buffer from the coupling part 1/2.

Before starting the assembly, the shaft ends as well as the coupling parts have to be cleaned thoroughly. Before cleaning the coupling parts with solvents, remove the buffers.



Observe the manufacturer's instructions on handling the solvents.

Caution!

Before mounting the coupling part 1 on the motor shaft, place the locking ring (31) on the hub of coupling part 1.

The coupling parts 1/2 must be mounted warm and must be heated to the temperature stated in the dimensional drawing to obtain the correct amount of shrinkage.

They can be heated either inductively, with a burner, or in a furnace.



Protect yourself against burns by hot parts!

Caution!

The heated coupling parts (1/2) are to be fitted by means of suitable devices in order to prevent damage to the shaft bearing by the axial fitting force. Make sure that suitable hoists are used.

Push the coupling parts 1/2 onto the shaft without delay, up to the point where the shaft surface and the front side of the coupling are aligned.

Note: Fix the coupling parts 1/2 to the shaft with a suitable fastening device until they have cooled and fit tightly on the shaft.

Allow the coupling parts 1/2 to cool down to +30 °C.

Install the bolt (4) with disk (6) and buffer (5) in coupling part 1.

Caution!

Pay close attention to markings.

Tighten nuts (7) or bolts (11) using a torque wrench (for correct torques see section 6.9).

Install the bolt (30) with disk (6) and buffer (5) in coupling part 2.

Caution!

Pay close attention to markings.

Tighten nuts (7) or bolts (11) using a torque wrench (for correct torques see section 6.9).

Determine the axial backlash of the electric motor in order to obtain the position of the machines being coupled. Half the actual backlash indicates the temporary position of the motor shaft in relation to the machine shaft and must be within the permitted deviation for dimension S_1 (see section 1).

Loop together the machines to be coupled.



Danger of squeezing!

Mount the locking ring (31) and bolt (30) with the bolts (32).

Caution!

Pay close attention to markings

Tighten the bolts (32) (see section 6.9 for correct torques) and secure them with a few spots of adhesive (e.g. Loctite type 242).

6.6 Aligning

The couplings compensate for positional variations of the shaft ends to be connected up to the data shown under item 6.7.

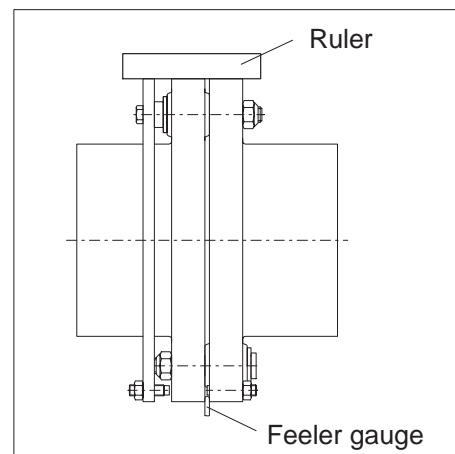
When aligning, keep the radial and angular misalignment of the shaft ends as small as possible because hereby the service life of the flexible is increased under otherwise the same operating conditions.

The alignment should be realised in the order:

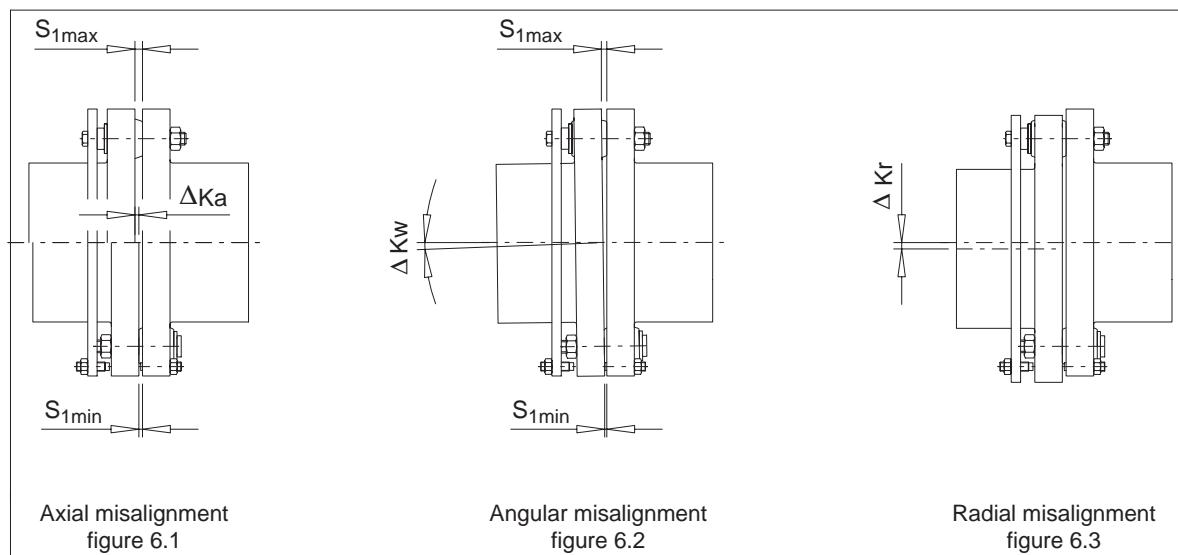
1. angular alignment
2. radial alignment

and should be carried out in two axial planes vertical to each other. This is possible by means of a feeler gauge (angular misalignment) and a ruler (radial misalignment). The distance dimension S_1 is to be kept (see Section 1.).

By using a dial gauge, the alignment precision can be increased.



6.7 Possible misalignments



Misalignments of the coupling parts may result from an inexact alignment during the assembly but also from the operation of the plant (expansion due to heat, bending of the shaft, machine frame too soft, etc.).

Caution!

The following max. permissible misalignments must not be exceeded during operation under any circumstances.

6.7.1 Axial misalignment

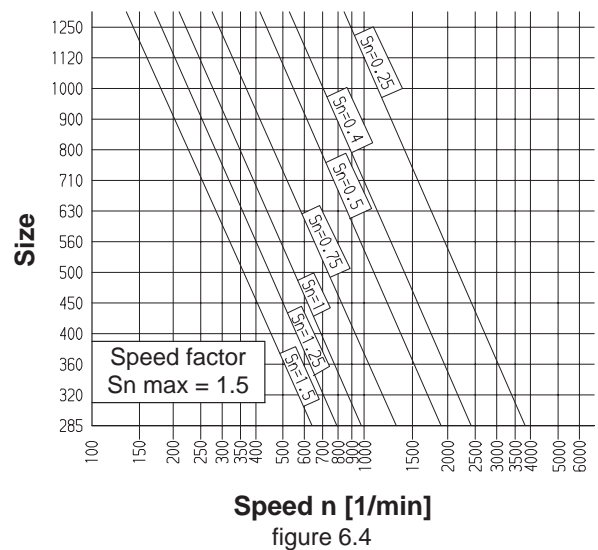
With due regard to the instructions given in 6.8, axial misalignment ΔK_a (fig. 6.1) of the coupling parts to one another is allowed within the permissible deviation for dimension S_1 (see section 1).

6.7.2 Angular misalignment

The permissible angular misalignment ΔK_w (figure 6.2) has to be determined taking into consideration the speed factor S_n of figure 6.4.
 $\Delta K_{w_{perm.}} = S_1 \max - S_1 \min = 0.00175 \times da \times S_n$
 (da = Coupling size)

6.7.3 Radial misalignment

The permissible radial misalignment ΔK_r (figure 6.3) has to be determined taking into consideration the speed factor S_n of figure 6.4.
 $\Delta K_{r_{perm.}} = 0.00175 \times da \times S_n$
 (da = Coupling size)



Caution!

Angular and radial misalignments may occur at the same time. The sum of both misalignments must not exceed the max. permissible value of the angular or radial misalignment.

$$(K_w + K_r)_{existing} \leq \Delta K_w \times S_n \text{ or } \Delta K_r \times S_n$$

6.8 Setting the axial-backlash limitation

The axial-backlash limitation on the RUPEX coupling must be less than the axial backlash calculated for the electric motor.

Using the set screws (33, 34), set the axial-backlash of the RUPEX coupling to approximately half the figure calculated for the motor. The coupling backlash must be within the figure permitted for S_1 .

Example:

Axial backlash of motor = 8 mm

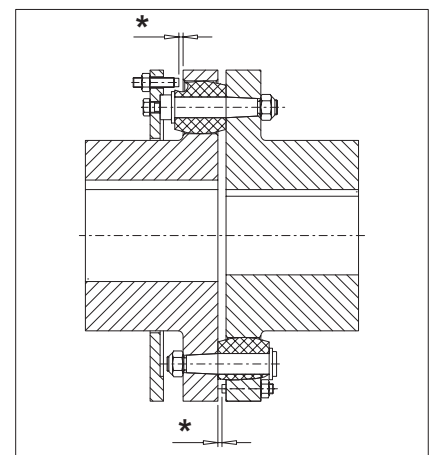
Axial backlash of coupling = 4 mm

Axial backlash to be set for each coupling part (dimension*) = 2 mm

As the centre of the rotor axial backlash is not necessarily identical with the magnetic centre of the motor, many electric motors have a mark on the shaft. When this mark is aligned with the outer surface of the bearing cover, this corresponds to the magnetic centre of the rotor.

In the case of motors without this mark, the magnetic centre should be determined through a test run.

In this operating position, the axial backlash set on the RUPEX coupling must be equal on both sides (dimension*) to prevent axial forces affecting the machine bearings. When the setting operation is complete, tighten the counter nuts (35).



Caution!

The axial backlash set must be large enough to allow the RUPEX coupling to compensate for the angular deviation.

6.9 Assignments of the tightening torques

Size	Tightening torque T_A		Wrench width S_W	
	Part 7, 11 Nm	Part 32 Nm	Part 7, 11 mm	Part 32 mm
285	150	60	24	17
320	150	60	24	17
360	220	105	27	19
400	220	105	27	19
450	180	255	24	24
500	180	255	24	24
560	340	500	30	30
630	340	500	30	30
710	580	870	36	36
800	580	870	36	36
900	600	870	36	36
1000	600	870	36	36
1120	1150	1750	46	46
1250	1150	1750	46	46

Table 6.4: Assignments of the tightening torques

7. Startup

7.1 Measures before startup

Before start-up, check the tension of the set screws, as well as the alignment, axial-backlash limitation, and clearance S_1 , and if necessary correct them. In addition, check that all bolted joints have been tightened to the specified torque (see sections 1 and 6). Finally, the coupling guard to prevent accidental contact is to be fixed.

8. Operation

8.1 General operating data

During operation, the coupling should be checked for:

- any changes in running noises
- sudden shaking.

Caution!

If irregularities are detected during operation, the drive assembly should be set off immediately. The cause of the malfunction should be determined with the aid of the Troubleshooting Table (Section 9.).

The Troubleshooting Table lists possible malfunctions, their causes and suggestions for remedying them.

If the cause cannot be determined or there is no facility for repair with suitable equipment, we recommend calling in one of our service fitters (see Section 11.).

9. Disturbances, reasons and remedy

9.1 General

The malfunctions listed below can only be hints for a troubleshooting.

In case of a complex plant, all other components have always to be included in the troubleshooting.

The coupling has to run with low noise and without shaking in all operating phases. Any deviating behaviour is to be regarded as malfunction and should be repaired immediately.



Before maintenance work, repairs or other work, the operator should make sure that the whole drive train is stationary. Especially the drive motors are to be secured against accidental start up. Furthermore, we refer to the relevant regulations on the prevention of accidents at the place of installation.

9.2 Possible malfunctions

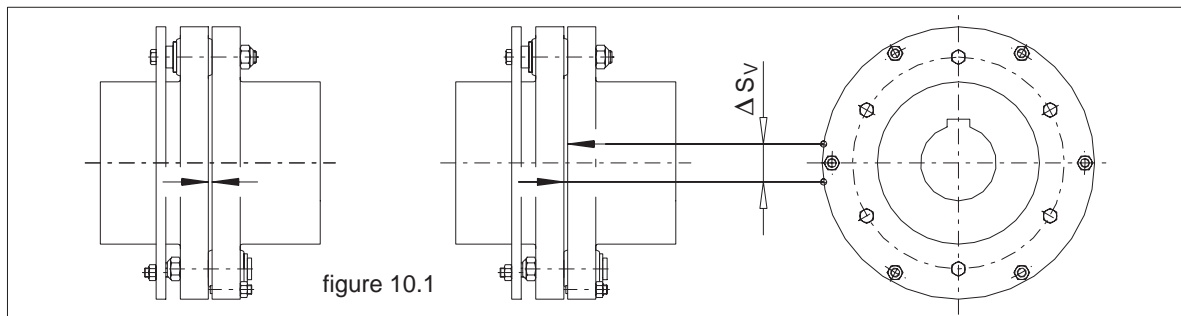
Malfunctions	Causes	Remedy
Sudden change of the noise level and/or sudden shaking	Change of alignment Buffers worn, no dampening	Shut down the plant possibly repair the reason for the change of alignment (e.g. fasten loose foundation bolts) Shut down the plant Disassemble coupling and remove the rests of the buffers Check coupling parts and exchange damaged coupling parts Buffers are to be changed in sets Check alignment and correct if necessary, see Section 6. Assembly of coupling acc. to Section 6. "Assembly" and Section 7. "Start up".

10. Maintenance and repair

10.1 General

The circumferential backlash between the two coupling parts should be checked according to the maintenance intervals, however, at least once a year. As far as an increased backlash of the coupling is not detrimental to the operation of the coupling, the elastic buffers may remain in use until a defined wear limit is reached before they should be changed. For evaluating the wear, in Table 10.1, the permissible circumferential backlash is listed, which is converted to the chord dimension ΔS_V on the outer coupling diameter. In order to determine the dimension ΔS_V , a coupling part is turned until stop without torque and a mark is made on the coupling part (see figure 10.1). By turning the coupling part in the opposite direction of rotation until stop, the marks move apart. The distance between the marks is the chord dimension ΔS_V . If the dimension ΔS_V exceeds the value listed in Table 10.1, the buffers should be changed.

Caution! The buffers should be changed in sets.



Size	285 / 320	360 / 400	450 / 500	560 / 630	710 / 800	900 / 1000	1120 / 1250
ΔS_V	6.0	7.0	8.5	10.0	12.0	13.5	15.0

Table 10.1: Wear mark

10.2 Change of wear parts

Only use original Rupex buffers as spare buffers, in order to guarantee a perfect transmission of the torque and a trouble-free function.

Carefully observe the instructions of Section 6. "Installation" and Section 7. "Start up" for the re-installation.

11. Spare parts stock, service facility addresses

Maintaining a stock of the most essential spare and wear parts is an important prerequisite for the permanent service ability of the coupling.

When ordering spare parts, the following data should be stated:

- Part No. (see Section 5.)
- Description / Size (the size designation corresponds to the outer diameter d_a in mm)
- Quantity

We assume warranty only for original spare parts supplied by us.

Caution!

We would expressly draw attention to the fact that spare parts and accessories not supplied by us have not been tested or approved by us either. Fitting and/or use of such products can therefore under certain circumstances adversely affect structurally specified properties of the coupling and will thus impair active and/or passive safety. No form of reliability or warranty will be assumed by FLENDER for damage occasioned by use of non-original spare parts and accessories.

Please note that production and supply specifications frequently exist for components and we will always offer spare parts in accordance with the state of the art and in accordance with the latest legal requirements.

11.1 Service facility addresses

When ordering spare parts or requesting a service fitter, please contact FLENDER AG first of all.

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12. Declaration by the manufacturer

Declaration by the manufacturer

in accordance with EC Engineering Guideline 98/37/EC, Appendix II B

We hereby declare that the

Flexible RUPEX couplings type RWN and RWS
with axial limitation of backlash

described in these Operating Instructions are intended for incorporation in a machine, and that it is prohibited to put them into service before verifying that the machine into which they are incorporated complies with the EC Guidelines (original edition 98/37/EC including any subsequent amendments thereto).

This Manufacturer's Declaration takes into account all the unified standards (inasmuch as they apply to our products) published by the European Commission in the Official Journal of the European Community.



Bocholt, 1998-10-28

Signature (person responsible for products)